Trinidad and Tobago
Civil Aviation Authority

TTCAA Advisory Circular

Subject: AIRLINE TRANSPORT PILOT LICENCE AND TYPE RATING SKILL TEST STANDARDS
TTCAA Advisory Circular TAC-PEL076
Date: 06/10/02

FOREWORD

1. (1) The TTCAA has developed skill test standards for airmen licences and ratings and these are published as TTCAA Advisory Circulars (TACs). This TAC establishes the standards for the Airline Transport Pilot Licence (ATPL) skill tests for the aeroplane category and the single-engine and multi-engine classes. Although helicopter and powered lift categories are included in this document, they are only at the "in development" stage at this time. TTCAA inspectors and designated pilot flight test examiners shall conduct skill tests in compliance with these standards. Flight instructors and applicants should find these standards helpful in skill test preparation. Other TACs have been developed for other airmen licences and can be obtained from the TTCAA website: http://www.caa.gov.tt.

(2) Terms, such as "shall" and "must" are directive in nature and when used in this document indicate that an action is mandatory. Guidance information is described in terms of "should" and "may" indicating the actions are desirable or permissive, but not mandatory.

(3) The TTCAA gratefully acknowledges the valuable assistance provided by the FAA in the development of these skill test standards (STS).

(4) The Trinidad and Tobago Civil Aviation Regulations (TTCARs) can be obtained from the Trinidad and Tobago Government Printery, Victoria Avenue, Port of Spain, Trinidad. TTCAR No.1, Part II and Part III cover the requirements for personnel licencing.

(5) This STS may be downloaded from the TTCAA website at http://www.caa.gov.tt. Subsequent changes to this STS will also be available on TTCAA web site and then later incorporated into a printed revision.

(6) Comments regarding this publication should be sent to:

The Trinidad and Tobago Civil Aviation Authority
PO Box 2163,
National Mail Centre Golden Grove Road,
Piarco,
Republic of Trinidad and Tobago.

_____
Ramesh Lutchmedial
Director General, Civil Aviation

This page intentionally left blank

CONTENTS

This page intentionally left blank

PURPOSE

1. The purpose of this TTCAA Advisory Circular (TAC) is to prescribe the standards that shall be used by TTCAA inspectors and designated flight test examiners when conducting Airline Transport Pilot—aeroplane (ATPL) skill tests. Flight instructors are expected to use this document when preparing applicants for skill tests. Applicants should be familiar with this document and refer to these standards during their training.

GENERAL

2. (1) An applicant for a Trinidad and Tobago Airline Transport Pilot Licence is required under TTCAR No.1 to provide the Authority with evidence that he has met the requirements of the TTCARs in respect of his ability to perform as pilot in command of a multi-engine aircraft required to be operated with a co-pilot. command of an aircraft, the relevant procedures and manoeuvres prescribed by the TTCARs, with a degree of competence appropriate to the privileges granted to the holder of an Airline Transport Pilot Licence. This TAC has been published by the TTCAA to establish the standards for the Airline Transport Pilot Licence skill tests for the aeroplane category and the single-engine and multi-engine classes. TTCAA inspectors and designated flight test examiners shall conduct skill tests in compliance with these standards. Flight instructors and applicants should find these standards helpful in preparing students for the required skill test for a Trinidad and Tobago Airline Transport Pilot Licence.

SKILL TEST STANDARD CONCEPT

2. Trinidad and Tobago Civil Aviation Regulations (TTCARs) No.1 specifies the areas in which knowledge and skills must be demonstrated by the applicant before the issue of an airline transport pilot license and/or a type rating in aeroplanes. The TTCARs provide the flexibility to permit the TTCAA to publish skill test standards (STSs) containing specific tasks in which pilot competency must be demonstrated. The TTCAA will revise this TAC whenever it is determined that changes are needed in the interest of safety. Adherence to provisions of the regulations and the STS is mandatory for the evaluation of pilot applicants.

SKILL TEST DESCRIPTION

General

3. (1) This skill test contains the Airline Transport Pilot and Aircraft Type Rating Skill Test Standards—Aeroplane. The Airline Transport Pilot and Aircraft Type Rating Skill Test Standards—Aeroplane includes areas of operation and tasks for the initial issue of an airline transport pilot licence and for the addition of category, class, and aircraft type ratings to that licence.

Areas of Operation

4. (1) The areas of operation are divided into two sections. The first area of operation in each section is conducted on the ground to determine the applicant's knowledge of the aircraft, equipment, performance, and limitations. The eight areas of operation in the second section are considered to be in flight. All eight areas of operation in the second section test the applicant's skill and knowledge. If all tasks, of the skill test, are not completed on one date, all remaining tasks of the test must be satisfactorily completed not more than 60 calendar days after the date on which the applicant began the test.

(2) Areas of operation are phases of the skill test arranged in a logical sequence within each standard. They begin with preflight preparation and end with postflight procedures. The examiner may combine tasks with similar objectives and conduct the skill test in any sequence that will result in a complete and efficient test.

Tasks

5. Tasks are titles of knowledge areas, flight procedures, or manoeuvres appropriate to an area of operation.

***Note**: Is used to emphasize special considerations required in the area of operation.*

Objective

6. The Objective lists the important elements that must be satisfactorily performed to demonstrate competency in a task. The Objective includes:

(a) Specifically what the applicant should be able to do;

(b) The conditions under which the task is to be performed; and

(c) The acceptable standards of performance.

Reference

7. (1) The reference identifies the publication(s) that describe(s) the task. Descriptions of tasks are not included in the skill test standards because this information can be found in the listed references, as amended. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications.

(2) These skill test standards are based on the following references, some of which are adopted in cooperation with the FAA.

TTCAR No.1	General Application and Personnel Licensing;
TTCAR No.2	Operations
FAA-H-8083-3	Aeroplane Flying Handbook
FAA-H-8083-15	Instrument Flying Handbook
FAA AC 120-51	Crew Resource Management Training
FAA AC 120-62	Takeoff Safety Training Aid
AFM	Approved Aeroplane Flight Manual
AIP	Aeronautical Information Publication
POH	Pertinent Pilot's Operating Handbooks
IAP	Instrument Approach Procedure Charts.
STAR/FMSP	Standard Terminal Arrival/Flight Management Systems Procedures
Other	En Route Low and High Altitude Charts Profile Descent Charts

***Note**: The latest revision of these references should be used.*

Abbreviations

8. The following abbreviations have the meaning shown.

ADM	Aeronautical Decision Making
ADF	Automatic Direction Finder
AGL	Above Ground Level
AMEL	Aeroplane-Multi-Engine Land
ASEL	Aeroplane-Single-Engine Land
ATS	Air Traffic Service
CARS	Civil Aviation Regulations
CDI	Course Deviation Indicator
CFIT	Controlled Flight into Terrain
CRM	Crew Resource Management
DH/DA	Decision Height/Decision Altitude
ETA	Estimated Time of Arrival
MDA	Minimum Descent Attitude
MEL	Minimum Equipment List
METAR	Aviation Routine Weather Report
NOTAM	Notice to Airmen

RMI	Radio Magnetic Indicator
STS	Skill Test Standards
TAF	Terminal Area Forecast
TTCAA	Trinidad and Tobago Civil Aviation Authority
TTCAR	Trinidad and Tobago Civil Aviation Regulation
VFR	Visual Flight Rules
Vmc	Minimum control speed with the critical engine inoperative
Vso	Stall speed
Vxse	Best angle of climb speed with one engine inoperative
Vsse	Safe, intentional one-engine inoperative speed (also known as safe single-engine speed)
Vyse	Best rate of climb speed with one engine inoperative.
Vx	Best angle of climb speed

USE OF THE SKILL TEST STANDARDS

9. (1) The tasks, in this STS, are for aeroplanes. These tasks apply to the applicant who seeks an airline transport pilot licence; the addition of a category, class, or aircraft type rating on that licence. The applicant that holds a private or commercial pilot licence and is seeking the addition of an aircraft type rating on that licence, must have the proper category/class rating or accomplish the appropriate tasks in the private/commercial pilot STS's, which are not in this STS.

(2) With certain exceptions, some described by notes, all tasks are required. However, when a particular element is not appropriate to the aircraft or its equipment, that element, at the discretion of the examiner, may be omitted. Examples of element exceptions are integrated flight systems for aircraft not so equipped, operation of landing gear in fixed gear aircraft, multiengine tasks in single-engine aircraft, or other situations where the aircraft operation is not compatible with the requirement of the element.

(3) Flight Test examiners must develop a written plan of action that includes the order and combination of tasks to be demonstrated by the applicant in a manner that results in an efficient and valid test. Although tasks with similar Objectives may be combined to conserve time, the Objectives of all tasks must be demonstrated and evaluated at some time during the skill test. It is of utmost importance that the examiner accurately evaluate the applicant's ability to perform safely as a pilot in the Suriname National Airspace System. The examiner may simulate/act as air traffic control (ATC) while conducting the skill test.

SPECIAL EMPHASIS AREAS

10. (1) Flight test examiners shall place special emphasis upon areas of aircraft operations considered critical to flight safety. Among these are positive aircraft control, positive exchange of the flight controls procedure (who is flying the aircraft), collision avoidance, wake turbulence avoidance, use of available automation, communication management, runway incursion, controlled flight into terrain (CFIT), crew resource management (CRM), aeronautical decision making (ADM), and other areas deemed appropriate to any phase of the skill test.

(2) Although these areas may not be specifically addressed under each task, they are essential to flight safety and will be critically evaluated during the skill test. In all instances, the applicant's actions will relate to the complete situation. The examiner's role regarding ATC, crew resource management, and the duties and responsibilities of the examiner through all phases of the skill test must be explained to and understood by the applicant, prior to the test.

SKILL TEST PREREQUISITES: AIRLINE TRANSPORT PILOT

11. An applicant for the original issue of an airline transport pilot licence is required (prior to the skill test) by TTCAR No.1 to:

(a) Have passed the appropriate airline transport pilot knowledge test within 24 months before the date of the skill test;

(b) Have the aeronautical experience prescribed in TTCAR No.1 that apply to the aircraft category and class rating;

(c) Have a current Class 1 medical certificate;

(d) Be at least 21 years of age; and

(e) Be able to comply with TTCAR No.1, Language proficiency.

***Note**: The 24-month limitation does not apply if the applicant is employed as a flight crewmember by a certificate holder under TTCAR No.3 at the time of the skill test and has satisfactorily accomplished that operator's approved — Pilot in command aircraft qualification training program that is appropriate to the licence and rating sought.*

SKILL TEST PREREQUISITES: AIRCRAFT TYPE RATING

12. (1) An applicant for a type rating in an aeroplane is required by TTCAR No.1 to have:

(a) The applicable experience;

(b) A minimum of a third-class medical certificate, if a medical certificate is required;

(c) The appropriate category and class rating, or accomplish the appropriate tasks in the private/commercial pilot STS's, which are not in this STS;

(d) Received and logged ground training from an authorized ground or flight instructor and flight training from an authorized flight instructor, on the areas of operation in this skill test standard that apply to the aircraft type rating sought; and

(e) Received a logbook endorsement from the instructor who conducted the training, certifying that the applicant completed all the training on the areas of operation in these skill test standards that apply to the aircraft type rating sought.

(2) If the applicant is an employee of a TTCAR No.3 certificate holder, the applicant may present a training record that shows the satisfactory completion of that certificate holder's approved pilot in command training program for the aircraft type rating sought, instead of the requirements of 4 and 5 above.

(3) An applicant who holds the private pilot or limited commercial pilot licence is required to have passed the appropriate instrument rating knowledge test since the beginning of the 24th month before the skill test is taken if the test is for the concurrent issue of an instrument rating and an aircraft type rating.

(4) If an applicant is taking a skill test for the issue of a private or commercial pilot licence with an aeroplane rating, in an aircraft that requires a type rating, private pilot skill test standards or commercial pilot skill test standards, as appropriate to the licence, should be used in conjunction with this STS. Also, the current instrument rating skill test standard should be used in conjunction with this STS if the applicant is concurrently taking a skill test for the issue of an instrument rating and a type rating. The tasks that are in the private pilot, commercial pilot, or instrument rating STS (and not in this STS) must be accomplished.

SKILL TEST PREREQUISITES: SEAPLANE CLASS RATING

13. (1) If the applicant does not hold a commercial pilot licence with a seaplane class rating and desires an aeroplane class rating of single engine sea, or multiengine sea, the latest edition of TTCAA-TAC-

PEl066, Commercial Pilot Skill Test Standards—Aeroplane, shall be used in conjunction with this skill test standard. Commercial pilot skill test standards, Section 3, Commercial Pilot Aeroplane Single Engine Sea, shall be used with single-engine aircraft. Commercial pilot skill test standards, Section 4, Commercial Pilot Aeroplane Multiengine Sea, shall be used with multiengine aircraft.

(2) In addition to the tasks in this skill test standard, the following tasks from the commercial pilot skill test standards must be accomplished for an aeroplane class rating of single-engine sea or multiengine sea.

(a) Water and Seaplane Characteristics.

(b) Seaplane Bases, Suriname Maritime Rules, and Aids to Marine Navigation.

(c) Sailing.

(d) Seaplane Base/Water Landing Site Markings and Lighting.

(e) Glassy Water Takeoff and Climb.

(f) Glassy Water Approach and Landing.

(g) Rough Water Takeoff and Climb.

(h) Rough Water Approach and Landing.

(i) Confined-Area Takeoff and Climb.

(j) Confined-Area Approach and Landing.

(k) Anchoring.

(l) Docking and Mooring.

(m) Beaching.

(n) Ramping.

(3) In addition to the above tasks, if the applicant does not have commercial multiengine class rating, the following task from the commercial pilot skill test standards must be accomplished for an aeroplane class rating of multiengine sea.

ENGINE INOPERATIVE-LOSS OF DIRECTIONAL CONTROL DEMONSTRATION

14. An amphibian type rating shall bear the limitation "LIMITED TO LAND" or "LIMITED TO SEA," as appropriate, unless the applicant demonstrates proficiency in both land and sea operations.

AIRCRAFT TYPE RATINGS LIMITED TO VFR

15. Pilot applicants who wish to add a type rating, limited to VFR, to their licence must take a skill test that includes the following items, as listed on pages 1-i, 2-i, and 2-ii of this document:

Section One: PREFLIGHT PREPARATION

I. AREA OF OPERATION:PREFLIGHT PREPARATION.

A. Equipment examination.
B. Performance and limitations.

Section Two: PREFLIGHT PROCEDURES, INFLIGHT MANOEUVRES, AND POSTFLIGHT PROCEDURES

II. AREA OF OPERATION:PREFLIGHT PROCEDURES.

A. Preflight inspection.
B. Powerplant start.
C. Taxiing.
D. Pre-takeoff checks.

III. AREA OF OPERATION: TAKEOFF AND DEPARTURE PHASE.
A. Normal and crosswind takeoff.
B. Powerplant failure during takeoff. (TASK C)
C. Rejected takeoff. (TASK D)

IV. AREA OF OPERATION:INFLIGHT MANOEUVRES.

A. Steep turns.
B. Approaches to stalls.
C. Powerplant failure—multiengine aeroplane.
D. Powerplant failure—single-engine aeroplane.
E. Specific flight characteristics.

V. AREA OF OPERATION: INSTRUMENT PROCEDURES.
(Not applicable)

VI. areas of operation: LANDINGS AND APPROACHES TO LANDINGS.

A. Normal and crosswind landings.
B. Landing with simulated powerplant failure—multiengine aeroplanes. (TASK C)
C. Rejected landing. (TASK E)
D. Landing from a no flap or a nonstandard flap approach. (TASK F)

VII. AREA OF OPERATION: NORMAL AND ABNORMAL PROCEDURES.

VIII. AREA OF OPERATION: EMERGENCY PROCEDURES.

IX. AREA OF OPERATION:POSTFLIGHT PROCEDURES.

A. After-landing procedures.
B. Parking and securing.

REMOVAL OF THE "LIMITED TO CENTER THRUST" LIMITATION

16. The removal of the "Limited to Center Thrust' limitation at the airline transport pilot licence level requires an applicant to satisfactorily perform the following areas of operation and tasks from TAC-PEL076, Airline Transport Pilot and Aircraft Type Rating Skill Test Standards—Aeroplane and also the following areas of operation and tasks from TAC-PEL066, Commercial Pilot Skill Test Standards—Aeroplane during the skill test in a multiengine aeroplane that has a manufacturer's published V_{MC} speed.

From TAC-PEL076, Airline Transport Pilot and Aircraft Type Rating Skill Test Standards—Aeroplane:

- AREA OF OPERATION III: TAKE OFF AND DEPARTURE PHASE

  - TASK C: POWERPLANT FAILURE DURING TAKEOFF
  - TASK D: REJECTED TAKEOFF

- AREA OF OPERATION IV: INFLIGHT MANOEUVRES

- □□□□□□□□□□TASK C: POWERPLANT FAILURE-MULTIENGINE AEROPLANE

o AREA OF OPERATION VI: LANDINGS AND APPROACHES TO LANDINGS

- TASK C: APPROACH AND LANDING WITH (SIMULATED) POWERPLANT FAILURE-MULTIENGINE

From TTCAA-S-8081-12A, Commercial Pilot Skill Test Standards— Aeroplane:

o AREA OF OPERATION I: PREFLIGHT PREPARATION

- TASK F: PRINCIPLES OF FLIGHT-ENGINE INOPERATIVE

o AREA OF OPERATION VIII: EMERGENCY OPERATIONS

- TASK C: ENGINE INOPERATIVE - LOSS OF DIRECTIONAL CONTROL DEMONSTRATION

***Note**: A Flight simulator or flight training device representative of a multiengine aeroplane, with a manufacturer's published V_{MC} speed, may be used.*

AIRCRAFT AND EQUIPMENT REQUIREMENTS FOR THE SKILL TEST

17. The applicant is required to provide an appropriate and airworthy aircraft for the skill test. Its operating limitations must not prohibit the tasks required on the skill test. Flight instruments are those required for controlling the aircraft without outside references. The aircraft must have radio equipment for communications with air traffic control and the performance of instrument approach procedures. If the aircraft/flight training device/flight simulator has a GPS properly installed, the applicant must demonstrate GPS approach proficiency.

***Note**: The skill test must be performed in actual or simulated instrument conditions, unless the skill test cannot be accomplished under instrument flight rules because the aircraft's type certificate makes the aircraft incapable of operating under instrument flight rules.*

USE OF TTCAA-APPROVED FLIGHT SIMULATION TRAINING DEVICE

18. (1) In the area of operation labeled "PREFLIGHT PREPARATION," the tasks are knowledge only. These tasks do not require the use of a flight simulation training device (FSTD), flight simulator, or an aircraft to accomplish, but they may be used.

(2) Each in flight manoeuvre or procedure must be performed by the applicant in an FSTD, flight simulator, or an aircraft. Appendix 1 of this skill test standard should be consulted to identify the manoeuvres or procedures that may be accomplished in an FSTD or flight simulator. The level of FSTD or flight simulator required for each manoeuvre or procedure will also be found in appendix 1. When accomplished in an aircraft, certain task elements may be accomplished through "simulated" actions in the interest of safety and practicality, but when accomplished in an FSTD or flight simulator, these same actions would not be "simulated."

(3) For example, when in an aircraft, a simulated engine fire may be addressed by retarding the throttle to idle, simulating the shutdown of the engine, simulating the discharge of the fire suppression agent, and simulating the disconnection of associated electrics, hydraulics, pneumatics, etc.

(4) However, when the same emergency condition is addressed in an FSTD or a flight simulator, all task elements must be accomplished as would be expected under actual circumstances. Similarly, safety of flight precautions taken in the aircraft for the accomplishment of a specific manoeuvre or procedure (such

as limiting altitude in an approach to stall, setting maximum airspeed for a rejected takeoff) need not be taken when an FSTD or a flight simulator is used.

(5) It is important to understand that whether accomplished in an FSTD, a flight simulator, or the aircraft, all tasks and task elements for each manoeuvre or procedure will have the same performance criteria applied for determination of overall satisfactory performance.

FLIGHT TEST EXAMINER RESPONSIBILITY

19. (1) The flight test examiner who conducts the skill test is responsible for determining that the applicant meets the standards outlined in the Objective of each task within the areas of operation, in the skill test standard. The flight test examiner shall meet this responsibility by determining that the applicant's knowledge and skill meet the Objective in all required tasks.

(2) The equipment examination must be closely coordinated and related to the flight portion of the skill test, but must not be given during the flight portion of the skill test. The equipment examination should be administered prior (it may be the same day) to the flight portion of the skill test. The flight test examiner may accept written evidence of the equipment exam if the exam is approved by the Director and administered by an individual authorized by the Director. The flight test examiner shall use whatever means deemed suitable to determine that the applicant's equipment knowledge meets the standard.

(3) The areas of operation in Section 2 contain tasks which include both “knowledge” and “skill” ELEMENTS. The flight test examiner shall ask the applicant to perform the skill ELEMENTS. Knowledge ELEMENTS not evident in the demonstrated skills may be tested by questioning, at anytime, during the flight event. Questioning in flight should be used judiciously so that safety is not jeopardized. Questions may be deferred until after the flight portion of the test is completed.

(4) For aircraft requiring only one pilot, the flight test examiner may not assist the applicant in the management of the aircraft, radio communications, tuning and identifying navigational equipment, and using navigation charts. If the flight test examiner, other than a TTCAA Inspector, is qualified and current in the specific make and model aircraft that is certified for two or more crewmembers, he or she may occupy a duty position. If the flight test examiner occupies a duty position on an aircraft that requires two or more crewmembers, the flight test examiner must fulfill the duties of that position. Moreover, when occupying a required duty position, the flight test examiner shall perform crew resource management functions as briefed and requested by the applicant.

(5) SAFETY OF FLIGHT shall be the prime consideration at all times. The flight test examiner, applicant, and crew shall be constantly alert for other traffic.

SATISFACTORY PERFORMANCE

20. The ability of an applicant to safely perform the required tasks is based on:

(a) Performing the tasks specified in the areas of operation for the licence or rating sought within the approved standards;

(b) Demonstrating mastery of the aircraft with the successful outcome of each task performed never seriously in doubt;

(c) Demonstrating satisfactory proficiency and competency within the approved standards and single-pilot competence if the aircraft is type certificated for single-pilot operations.

(d) Demonstrating sound judgment and crew resource management.

UNSATISFACTORY PERFORMANCE

21. (1) Consistently exceeding tolerances stated in the task Objective, or failure to take prompt, corrective action when tolerances are exceeded, is indicative of unsatisfactory performance. The tolerances represent the performance expected in good flying conditions. Any action, or lack thereof, by the applicant which requires corrective intervention by the flight test examiner to maintain safe flight shall be disqualifying. If the applicant fails the skill test because of a special emphasis area, the Notice of Disapproval shall indicate the associated task. i.e.: area of operation IV, Approach to Stalls, failure to clear the area.

***Note**: It is vitally important that the applicant, safety pilot, and flight test examiner use proper and effective scanning techniques to observe all other traffic in the area to ensure the area is clear before performing any manoeuvres.*

(2) If, in the judgment of the flight test examiner, the applicant's performance of any task is unsatisfactory, the associated area of operation is failed and therefore the skill test is failed. Flight test examiners shall not repeat tasks that have been attempted and failed. The flight test examiner or applicant may discontinue the test at any time after the failure of a task, which makes the applicant ineligible for the licence or rating sought. The skill test will be continued only with the consent of the applicant. In such cases, it is usually better for the flight test examiner to continue with the skill test to complete the other tasks. If the flight test examiner determines that the entire skill test must be repeated, the skill test should not be continued but should be terminated immediately. If the skill test is either continued or discontinued, the applicant is entitled to credit for those areas of operation satisfactorily performed, if the remainder of the skill test is completed within 60 days of when the skill test was discontinued. However, during the retest and at the discretion of the flight test examiner, any area of operation may be reevaluated including those previously passed. Whether the remaining parts of the skill test are continued or not after a failure, a notice of disapproval must be issued.

(3) When the flight test examiner determines that a task is incomplete, or the outcome uncertain, the flight test examiner may require the applicant to repeat that task, or portions of that task. This provision has been made in the interest of fairness and does not mean that instruction or practice is permitted during the certification process. When practical, the remaining tasks of the skill test phase should be completed before repeating the questionable task. If the second attempt to perform a questionable task is not clearly satisfactory, the flight test examiner shall consider it unsatisfactory.

(4) If the skill test must be terminated for unsatisfactory performance and there are other areas of operation which have not been tested or still need to be repeated, a notice of disapproval shall be issued listing the specific areas of operation which have not been successfully completed or tested.

(5) When a skill test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure, weather, illness), the Application Form for Licence, Rating, Authorization or Validation Certificate, and, if applicable, Application Form for Licence, Rating, Authorization or Validation Certificate Knowledge Test Airman Written Test Report, should be returned to the applicant. The flight test examiner at that time should prepare, sign, and issue a Letter of Discontinuance to the applicant.

(6) The Letter of Discontinuance should identify the portions of the skill test that were successfully completed. The applicant shall be advised that the Letter of Discontinuance must be presented to the flight test examiner, to receive credit for the items successfully completed, when the skill test is resumed and made part of the certification file.

RECORDING UNSATISFACTORY PERFORMANCE

22. This skill test standard uses the terms “area of operation” and “task” to denote areas in which competency must be demonstrated. When a disapproval notice is issued, the flight test examiner must record the applicant's unsatisfactory performance in terms of “area of operation” appropriate to the skill test conducted.

CREW RESOURCE MANAGEMENT (CRM)

23. (1) CRM "refers to the effective use of all available resources; human resources, hardware, and information." Human resources "includes all other groups routinely working with the cockpit crew (or pilot) who are involved in decisions that are required to operate a flight safely. These groups include, but are not limited to: dispatchers, cabin crewmembers, maintenance personnel, and air traffic controllers." CRM is not a single task. CRM is a set of competencies which must be evident in all tasks in this skill test standard as applied to the single pilot or the multi crew operation. CRM competencies, grouped into three clusters of observable behavior, are:

(a) COMMUNICATIONS PROCESSES AND DECISIONS

(i) Briefing

(ii) Inquiry/Advocacy/Assertiveness

(iii) Self-Critique

(iv) Communication with available personnel resources

(v) Decision making

(b) BUILDING AND MAINTENANCE OF A FLIGHT TEAM

(i) Leadership/Followership

(ii) Interpersonal Relationships

(c) WORKLOAD MANAGEMENT AND SITUATIONAL AWARENESS

(i) Preparation/Planning

(ii) Vigilance

(iii) Workload Distribution

(iv) Distraction Avoidance

(v) Wake Turbulence Avoidance

(2) CRM deficiencies almost always contribute to the unsatisfactory performance of a task. Therefore, the competencies provide an extremely valuable vocabulary for debriefing. For debriefing purposes, an amplified list of these competencies, expressed as behavioral markers, may be found in FAA AC 120-51, as amended, Crew Resource Management Training. These markers consider the use of various levels of automation in flight management systems.

(3) CRM evaluations are still largely subjective. Certain CRM competencies are well-suited to objective evaluation. These are the CRM-related practices set forth in the aircraft manufacturer's or the operator's TTCAA-approved operating or training manuals as explicit, required procedures. Those procedures may be associated with one or more tasks in these skill test standards. Examples include required briefings, radio calls, and instrument approach callouts. The evaluator simply observes that the individual complies (or fails to comply) with requirements.

HOW THE FLIGHT TEST EXAMINER APPLIES CRM

24. (1) Flight test examiners are required to exercise proper CRM competencies in conducting tests, as well as expecting the same from applicants.

(2) Pass/Fail judgments based solely on CRM issues must be carefully chosen since they may be entirely subjective. Those Pass/Fail judgments which are not subjective apply to CRM-related procedures in TTCAA-approved operations manuals that must be accomplished, such as briefings to other crewmembers. In such cases, the operator (or the aircraft manufacturer) specifies what should be briefed and when the briefings should occur. The flight test examiner may judge objectively whether the briefing requirement was

or was not met. In those cases where the operator (or aircraft manufacturer) has not specified a briefing, the flight test examiner shall require the applicant to brief the appropriate items from the following note. The flight test examiner may then judge objectively whether the briefing requirement was or was not met.

***Note**: The majority of aviation accidents and incidents are due to resource management failures by the pilot/crew; fewer are due to technical failures. Each applicant shall give a crew briefing before each takeoff/departure and approach/landing. If the operator or aircraft manufacturer has not specified a briefing, the briefing shall cover the appropriate items, such as runway, SID/DP/STAR/FMSP/IAP, power settings, speeds, abnormals or emergency prior to or after reaching decision speed (i.e., V 1 or VMC), emergency return intentions, missed approach procedures, FAF, altitude at FAF, initial rate of descent, DA/DH/MDA, time to missed approach, and what is expected of the other crewmembers during the takeoff/DP and approach/landing.*

(3) If the first takeoff/departure and approach/landing briefings are satisfactory, the flight test examiner may allow the applicant to brief only the changes, during the remainder of the flight.

APPLICANT'S USE OF CHECKLISTS

25. Throughout the skill test, the applicant is evaluated on the use of an appropriate checklist. Proper use is dependent on the specific task being evaluated. The situation may be such that the use of the checklist, while accomplishing elements of an Objective, would be either unsafe or impractical, especially in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished would be appropriate. Use of a checklist should also consider visual scanning and division of attention at all times.

USE OF DISTRACTIONS DURING SKILL TESTS

26. Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. To evaluate the pilot's ability to utilize proper control technique while dividing attention both inside and outside the cockpit, the flight test examiner shall cause a realistic distraction during the flight portion of the skill test to evaluate the applicant's ability to divide attention while maintaining safe flight.

This page intentionally left blank

SECTION 1

PREFLIGHT PREPARATION
SECTION 1 — PREFLIGHT PREPARATION

CONTENTS

AREA OF OPERATION

I. PREFLIGHT PREPARATION

I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: EQUIPMENT EXAMINATION

REFERENCES: Part 2; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge appropriate to the aeroplane; its systems and components; its normal, abnormal, and emergency procedures; and uses the correct terminology with regard to the following items—

   (a) Landing gear—indicators, float devices, brakes, antiskid, tires, nose-wheel steering, and shock absorbers.
   (b) Powerplant—controls and indications, induction system, carburetor and fuel injection, turbocharging, cooling, fire detection/protection, mounting points, turbine wheels, compressors, deicing, anti-icing, and other related components.
   (c) Propellers—type, controls, feathering/unfeathering, autofeather, negative torque sensing, synchronizing, and synchrophasing.
   (d) Fuel system—capacity; drains; pumps; controls; indicators; crossfeeding; transferring; jettison; fuel grade, color and additives; fueling and defueling procedures; and substitutions, if applicable.
   (e) Oil system—capacity, grade, quantities, and indicators.
   (f) Hydraulic system—capacity, pumps, pressure, reservoirs, grade, and regulators.
   (g) Electrical system—alternators, generators, battery, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings.
   (h) Environmental systems—heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.
   (i) Avionics and communications—autopilot; flight director; electronic flight indicating systems (efis); flight management system(s) (fms); long range navigation (loran) systems; doppler radar; inertial navigation systems (ins); global positioning system (gps/dgps/wgps); vor, ndb, ils/mls, rnav systems and components; indicating devices; transponder; and emergency locator transmitter.
   (j) Ice protection—anti-ice, deice, pitot-static system protection, propeller, windshield, wing and tail surfaces.
   (k) Crewmember and passenger equipment—oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.
   (l) Flight controls—ailerons, elevator(s), rudder(s), winglets, canards, control tabs, balance tabs, stabilizer, flaps, spoilers, leading edge flaps/slats and trim systems.
   (m) Pitot-static system with associated instruments and the power source for the flight instruments.

2. Exhibits adequate knowledge of the contents of the POH or AFM with regard to the systems and components listed in paragraph 1 (above); the Minimum Equipment List (MEL), if appropriate; and the Operations Specifications, if applicable.

B.TASK: PERFORMANCE AND LIMITATIONS

REFERENCES: CARS Parts 1, 2, 8; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of performance and limitations, including a thorough knowledge of the adverse effects of exceeding any limitation.
2. Demonstrates proficient use of (as appropriate to the aeroplane) performance charts, tables, graphs, or other data relating to items, such as

   (a) Accelerate-stop distance.
   (b) Accelerate-go distance.
   (c) Takeoff performance—all engines, engine(s) inoperative.
   (d) Climb performance including segmented climb performance; with all engines operating—with one or more engine(s) inoperative, and with other engine malfunctions as may be appropriate.
   (e) Service ceiling—all engines, engines(s) inoperative, including drift down, if appropriate.
   (f) Cruise performance.
   (g) Fuel consumption, range, and endurance.
   (h) Descent performance.
   (i) Go-around from rejected landings.
   (j) Other performance data (appropriate to the aeroplane).
3. Describes (as appropriate to the aeroplane) the airspeeds used during specific phases of flight.
4. Describes the effects of meteorological conditions upon performance characteristics and correctly applies these factors to a specific chart, table, graph, or other performance data.
5. Computes the center-of-gravity location for a specific load condition (as specified by the flight test examiner), including adding, removing, or shifting weight.
6. Determines if the computed center-of-gravity is within the forward and aft center-of-gravity limits, and that lateral fuel balance is within limits for takeoff and landing.
7. Demonstrates good planning and knowledge of procedures in applying operational factors affecting aeroplane performance.

SECTION 2

PREFLIGHT PROCEDURES, INFLIGHT MANOEUVRES, AND POSTFLIGHT PROCEDURES

SECTION 2 PREFLIGHT PROCEDURES, INFLIGHT MANOEUVRES, AND POSTFLIGHT PROCEDURES

CONTENTS
AREAS OF OPERATION

II. AREA OF OPERATION: PREFLIGHT PROCEDURES

A. TASK: PREFLIGHT INSPECTION

REFERENCES: Parts 2, 8; POH, and AFM.

NOTE: If a flight engineer (FE) is a required crewmember for a particular type aeroplane, the actual visual inspection may be waived. The actual visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of inspection items. On aeroplanes requiring an FE, an applicant must demonstrate adequate knowledge of the FE functions for the safe completion of the flight if the FE becomes ill or incapacitated during a flight.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the preflight inspection procedures, while explaining briefly—

    (a) The purpose of inspecting the items, which must be checked.
    (b) How to detect possible defects.
    (c) The corrective action to take.

2. Exhibits adequate knowledge of the operational status of the aeroplane by locating and explaining the significance and importance of related documents, such as

    (a) Airworthiness and registration certificates.
    (b) Operating limitations, handbooks, and manuals.
    (c) Minimum equipment list (mel) (if appropriate).
    (d) Weight and balance data.
    (e) Maintenance requirements, tests, and appropriate records applicable to the proposed flight or operation; and maintenance that may be performed by the pilot or other designated crewmember.

3. Uses the approved checklist to inspect the aeroplane externally and internally.
4. Uses the challenge-and-response (or other approved) method with the other crewmember(s), where applicable, to accomplish the checklist procedures.

5. Verifies the aeroplane is safe for flight by emphasizing (as appropriate) the need to look at and explain the purpose of inspecting items, such as—

    (a) Powerplant, including controls and indicators.
    (b) Fuel quantity, grade, type, contamination safeguards, and servicing procedures.
    (c) Oil quantity, grade, and type.
    (d) Hydraulic fluid quantity, grade, type, and servicing procedures.
    (e) Oxygen quantity, pressures, servicing procedures, and associated systems and equipment for crew and passengers.
    (f) Hull, landing gear, float devices, brakes, and steering system.
    (g) Tires for condition, inflation, and correct mounting, where applicable.
    (h) Fire protection/detection systems for proper operation, servicing, pressures, and discharge indications.
    (i) Pneumatic system pressures and servicing.
    (j) Ground environmental systems for proper servicing and operation.
    (k) Auxiliary power unit (apu) for servicing and operation.
    (l) Flight control systems including trim, spoilers, and leading/trailing edge.
    (m) Anti-ice, deice systems, servicing, and operation.

6. Coordinates with ground crew and ensures adequate clearance prior to moving any devices, such as door, hatches, and flight control surfaces.
7. Complies with the provisions of the appropriate Operations Specifications, if applicable, as they pertain to the particular aeroplane and operation.
8. Demonstrates proper operation of all applicable aeroplane systems.
9. Notes any discrepancies, determines if the aeroplane is airworthy and safe for flight, or takes the proper corrective action.
10. Checks the general area around the aeroplane for hazards to the safety of the aeroplane and personnel.

B. TASK: POWERPLANT START

REFERENCES: Part 2; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the correct powerplant start procedures including the use of an auxiliary power unit (APU) or external power source, starting under various atmospheric conditions, normal and abnormal starting limitations, and the proper action required in the event of a malfunction.
2. Ensures the ground safety procedures are followed during the before-start, start, and after-start phases.
3. Ensures the use of appropriate ground crew personnel during the start procedures.
4. Performs all items of the start procedures by systematically following the approved checklist items for the before-start, start, and after-start phases.
5. Demonstrates sound judgment and operating practices in those instances where specific instructions or checklist items are not published.

C. TASK: TAXIING

REFERENCES: Part 2; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of safe taxi procedures (as appropriate to the aeroplane including push-back or power back, as may be applicable).
2. Demonstrates proficiency by maintaining correct and positive aeroplane control. In aeroplanes equipped with float devices, this includes water taxiing, sailing, step taxi, approaching a buoy, and docking.
3. Maintains proper spacing on other aircraft, obstructions, and persons.
4. Accomplishes the applicable checklist items and performs recommended procedures.
5. Maintains desired track and speed.
6. Complies with instructions issued by ATC (or the flight test examiner simulating ATC).
7. Observes runway hold lines, localizer and glide slope critical areas, buoys, beacons, and other surface control markings and lighting.
8. Maintains constant vigilance and aeroplane control during taxi operation to prevent runway incursion.

D. TASK: PRETAKEOFF CHECKS

REFERENCES: Part 2; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the pretakeoff checks by stating the reason for checking the items outlined on the approved checklist and explaining how to detect possible malfunctions.
2. Divides attention properly inside and outside cockpit.
3. Ensures that all systems are within their normal operating range prior to beginning, during the performance of, and at the completion of those checks required by the approved checklist.
4. Explains, as may be requested by the flight test examiner, any normal or abnormal system operating characteristic or limitation; and the corrective action for a specific malfunction.
5. Determines if the aeroplane is safe for the proposed flight or requires maintenance.
6. Determines the aeroplane's takeoff performance, considering such factors as wind, density altitude, weight, temperature, pressure altitude, and runway condition and length.
7. Determines airspeeds/V-speeds and properly sets all instrument references, flight director and autopilot controls, and navigation and communications equipment.
8. Reviews procedures for emergency and abnormal situations, which may be encountered during takeoff, and states the corrective action required of the pilot in command and other concerned crewmembers.
9. Obtains and correctly interprets the takeoff and departure clearance as issued by ATC.

III. AREA OF OPERATION: TAKEOFF AND DEPARTURE PHASE

A. TASK: NORMAL AND CROSSWIND TAKEOFF

REFERENCES: Part 2, POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of normal and crosswind takeoffs and climbs including (as appropriate to the aeroplane) airspeeds, configurations, and emergency/ abnormal procedures.
2. Notes any surface conditions, obstructions, aircraft cleared for LAHSO, or other hazards that might hinder a safe takeoff.
3. Verifies and correctly applies correction for the existing wind component to the takeoff performance.
4. Completes required checks prior to starting takeoff to verify the expected powerplant performance. Performs all required pretakeoff checks as required by the appropriate checklist items.
5. Aligns the aeroplane on the runway centerline.
6. Applies the controls correctly to maintain longitudinal
7. alignment on the centerline of the runway prior to initiating and during the takeoff.
8. Adjusts the powerplant controls as recommended by the TTCAA-approved guidance for the existing conditions.
9. Monitors powerplant controls, settings, and instruments during takeoff to ensure all predetermined parameters are maintained.
10. Adjusts the controls to attain the desired pitch attitude at the predetermined airspeed/V-speed to attain the desired performance for the particular takeoff segment.
11. Performs the required pitch changes and, as appropriate, performs or calls for and verifies the accomplishment of, gear and flap retractions, power adjustments, and other required pilot-related activities at the required airspeed/V speeds within the tolerances established in the POH or AFM.
12. Uses the applicable noise abatement and wake turbulence avoidance procedures, as required.
13. Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items.
14. Maintains the appropriate climb segment airspeed/V speeds.
15. Maintains the desired heading within ±5° and the desired airspeed/V-speed within ±5 knots or the appropriate V speed range.

B. TASK: INSTRUMENT TAKEOFF

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of an instrument takeoff with instrument meteorological conditions simulated at or before reaching an altitude of 100 feet (30 meters) AGL. If accomplished in a flight simulator, visibility should be no greater than one-quarter (1/4) mile, or as specified by operator specifications.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the manoeuvre, such as Takeoff Warning Inhibit Systems or other aeroplane characteristics, runway length, surface conditions, wind, wake turbulence, obstructions, and other related factors that could adversely affect safety.
3. Accomplishes the appropriate checklist items to ensure that the aeroplane systems applicable to the instrument takeoff are operating properly.
4. Sets the applicable radios/flight instruments to the desired setting prior to initiating the takeoff.
5. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway prior to initiating and during the takeoff.
6. Transitions smoothly and accurately from visual meteorological conditions to actual or simulated instrument meteorological conditions.
7. Maintains the appropriate climb attitude.
8. Complies with the appropriate airspeeds/V-speeds and climb segment airspeeds.
9. Maintains desired heading within ±5° and desired airspeeds within ±5 knots.
10. Complies with ATC clearances and instructions issued by ATC (or the flight test examiner simulating ATC).

C. TASK: POWERPLANT FAILURE DURING TAKEOFF

NOTE: In a multiengine aeroplane with published V_1, V_R, and/or V_2 speeds, the failure of the most critical powerplant should be simulated at a point:

1. after V_1 and prior to V_2, if in the opinion of the flight test examiner, it is appropriate under the prevailing conditions; or
2. as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical.

In a multiengine aeroplane for which no V_1, V_R, or V_2 speeds are published, the failure of the most critical powerplant should be simulated at a point after reaching a minimum of V_{SSE} and, if accomplished in the aircraft, at an altitude not lower than 500 feet AGL.

REFERENCES: Part 2; FAA-H-8083-3; FAA AC 120-62; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the procedures used during powerplant failure on takeoff, the appropriate reference airspeeds, and the specific pilot actions required.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the manoeuvre such as Takeoff Warning Inhibit Systems or other aeroplane characteristics, runway length, surface conditions, wind, wake turbulence, obstructions, and other related factors that could adversely affect safety.
3. Completes required checks prior to starting takeoff to verify the expected powerplant performance. Performs all required pretakeoff checks as required by the appropriate checklist items.
4. Aligns the aeroplane on the runway.
5. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway prior to initiating and during the takeoff.
6. Adjusts the powerplant controls as recommended by the TTCAA-approved guidance for the existing conditions.
7. Single-Engine Aeroplanes: Establishes a power-off descent approximately straight-ahead, if the powerplant failure occurs after becoming airborne.
8. Continues the takeoff (in a multiengine aeroplane) if the (simulated) powerplant failure occurs at a point where the aeroplane can continue to a specified airspeed and altitude at the end of the runway commensurate with the aeroplane's performance capabilities and operating limitations.
9. Maintains (in a multiengine aeroplane), after a simulated powerplant failure and after a climb has been established, the desired heading within ±5°, desired airspeed within ±5 knots, and, if appropriate for the aeroplane, establishes a bank of approximately 5°, or as recommended by the manufacturer, toward the operating powerplant.
10. Maintains the aeroplane alignment with the heading appropriate for climb performance and terrain clearance when powerplant failure occurs.

D. TASK: REJECTED TAKEOFF

REFERENCES: Part 2; FAA-H-8083-3; FAA AC 120-62; POH, AFM.

Objective. To determine that the applicant understands when to reject or continue the takeoff and:

1. Exhibits adequate knowledge of the technique and procedure for accomplishing a rejected takeoff after powerplant/system(s) failure/warnings, including related safety factors.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the manoeuvre, such as Takeoff Warning Inhibit Systems or other aeroplane characteristics, runway length, surface conditions, wind, obstructions, and aircraft cleared for LAHSO that could affect takeoff performance and could adversely affect safety.
3. Aligns the aeroplane on the runway centerline.
4. Performs all required pretakeoff checks as required by the appropriate checklist items.
5. Adjusts the powerplant controls as recommended by the TTCAA-approved guidance for the existing conditions.
6. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway.
7. Aborts the takeoff if, in a single-engine aeroplane the powerplant failure occurs prior to becoming airborne, or in a multiengine aeroplane, the powerplant failure occurs at a point during the takeoff where the abort procedure can be initiated and the aeroplane can be safely stopped on the remaining runway/stopway. If a flight simulator is not used, the powerplant failure should be simulated before reaching 50 percent of V_{MC}.

8. Reduces the power smoothly and promptly, if appropriate to the aeroplane, when powerplant failure is recognized.
9. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, maintaining positive control in such a manner as to bring the aeroplane to a safe stop. Accomplishes the appropriate powerplant failure or other procedures and/or checklists as set forth in the POH or AFM.

E. TASK: DEPARTURE PROCEDURES

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits adequate knowledge of DP's, En Route Low and High Altitude Charts, STARs, FMSP, and related pilot/controller responsibilities.
2. Uses the current and appropriate navigation publications for the proposed flight.
3. Selects and uses the appropriate communications frequencies, and selects and identifies the navigation aids associated with the proposed flight.
4. Performs the appropriate checklist items.
5. Establishes communications with ATC, using proper phraseology.
6. Complies, in a timely manner, with all instructions and airspace restrictions.
7. Exhibits adequate knowledge of two-way radio communications failure procedures.
8. Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the flight test examiner.
9. Maintains the appropriate airspeed within ±10 knots, headings within ±10°, altitude within ±100 feet (30 meters); and accurately tracks a course, radial, or bearing.
10. Conducts the departure phase to a point where, in the opinion of the flight test examiner, the transition to the en route environment is complete.

IV. AREA OF OPERATION: INFLIGHT MANOEUVRES

A. TASK: STEEP TURNS

REFERENCES: Part 2; FAA-H-8083-15; FSB Report; POH, AFM.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits adequate knowledge of steep turns (if applicable to the aeroplane) and the factors associated with performance; and, if applicable, wing loading, angle of bank, stall speed, pitch, power requirements, and over-banking tendencies.
2. Selects an altitude recommended by the manufacturer, training syllabus, or other training directive, but in no case lower than 3,000 feet (900 meters) AGL.
3. Establishes the recommended entry airspeed.
4. Rolls into a coordinated turn of 180° or 360° with a bank of at least 45°. Maintains the bank angle within ±5° while in smooth, stabilized flight.
5. Applies smooth coordinated pitch, bank, and power to maintain the specified altitude within ±100 feet (30 meters) and the desired airspeed within ±10 knots.
6. Rolls out of the turn (at approximately the same rate as used to roll into the turn) within ±10° of the entry or specified heading, stabilizes the aeroplane in a straightand-level attitude or, at the discretion of the flight test examiner, reverses the direction of turn and repeats the manoeuvre in the opposite direction.
7. Avoids any indication of an approaching stall, abnormal flight attitude, or exceeding any structural or operating limitation during any part of the manoeuvre.

B. TASK: APPROACHES TO STALLS

REFERENCES: Part 2; FAA-H-8083-3; FSB Report; POH, AFM.

THREE approaches to stall are required, as follows (unless otherwise specified by the FSB Report):

1. One in the takeoff configuration (except where the aeroplane uses only zero-flap takeoff configuration) or approach configuration.
2. One in a clean configuration.
3. One in a landing configuration.

One of these approaches to a stall must be accomplished while in a turn using a bank angle of 15 to 30°.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions exhibits adequate knowledge of the factors, which influence stall characteristics, including the use of various drag configurations, power settings, pitch attitudes, weights, and bank angles. Also, exhibits adequate knowledge of the proper procedure for resuming normal flight.
2. Selects an entry altitude that is in accordance with the AFM or POH, but in no case lower than an altitude that will allow recovery to be safely completed at a minimum of 3,000 feet (900 meters) AGL. When accomplished in an FTD or flight simulator, the entry altitude may be at low, intermediate, or high altitude as appropriate for the aeroplane and the configuration, at the discretion of the flight test examiner.
3. Observes the area is clear of other aircraft prior to accomplishing an approach to a stall.
4. While maintaining altitude, slowly establishes the pitch attitude (using trim or elevator/stabilizer), bank angle, and power setting that will induce stall at the desired target airspeed.
5. Announces the first indication of an impending stall (such as buffeting, stick shaker, decay of control effectiveness, and any other cues related to the specific aeroplane design characteristics) and initiates recovery or as directed by the flight test examiner (using maximum power or as directed by the flight test examiner).
6. Recovers to a reference airspeed, altitude and heading, allowing only the acceptable altitude or airspeed loss, and heading deviation.
7. Demonstrates smooth, positive control during entry, approach to a stall, and recovery.

C. TASK: POWERPLANT FAILURE—MULTIENGINE AEROPLANE

REFERENCES: Part 2; POH, AFM.

NOTE: When not in an FTD or a flight simulator, the feathering of one propeller must be demonstrated in any multiengine aeroplane equipped with propellers (includes turboprop), which can be safely feathered and unfeathered while airborne. In a multiengine jet aeroplane, one engine must be shut down and a restart must be demonstrated while airborne. Feathering or shutdown should be performed only under conditions, and at such altitudes (no lower than 3,000 feet [900 meters] AGL) and in a position where a safe landing can be made on an established aerodrome in the event difficulty is encountered in unfeathering the propeller or restarting the engine. At an altitude lower than 3,000 feet (900 meters) AGL, simulated engine failure will be performed by setting the powerplant controls to simulate zero-thrust. In the event propeller cannot be unfeathered or engine air started during the test, it should be treated as an emergency. When authorized and conducted in a flight simulator, feathering or shutdown may be performed in conjunction with any procedure or manoeuvre and at locations and altitudes at the discretion of the flight test examiner. However, when conducted in an FTD, authorizations shall be limited to shutdown, feathering, restart, and/or unfeathering procedures only. See appendix 1.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the flight characteristics and controllability associated with manoeuvring with powerplant(s) inoperative (as appropriate to the aeroplane).
2. Maintains positive aeroplane control. Establishes a bank of approximately 5°, if required, or as recommended by the manufacturer, to maintain coordinated flight, and properly trims for that condition.
3. Sets powerplant controls, reduces drag as necessary, correctly identifies and verifies the inoperative powerplant(s) after the failure (or simulated failure).
4. Maintains the operating powerplant(s) within acceptable operating limits.
5. Follows the prescribed aeroplane checklist, and verifies the procedures for securing the inoperative powerplant(s).
6. Determines the cause for the powerplant(s) failure and if a restart is a viable option.
7. Maintains desired altitude within ±100 feet (30 meters), when a constant altitude is specified and is within the capability of the aeroplane.
8. Maintains the desired airspeed within ±10 knots.
9. Maintains the desired heading within ±10° of the specified heading.
10. Demonstrates proper powerplant restart procedures (if appropriate)in accordance with TTCAA-approved procedure/checklist or the manufacturer's recommended procedures and pertinent checklist items.

D. TASK: POWERPLANT FAILURE—SINGLE-ENGINE AEROPLANE

REFERENCES: Part 2; FAA-H-8083-3; POH, AFM.

NOTE: No simulated powerplant failure shall be given by the flight test examiner in an aeroplane when an actual touchdown could not be safely completed should it become necessary.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the flight characteristics, approach and forced (emergency) landing procedures, and related procedures to use in the event of a powerplant failure (as appropriate to the aeroplane).
2. Maintains positive control throughout the manoeuvre.
3. Establishes and maintains the recommended best glide
4. airspeed, ±5 knots, and configuration during a simulated powerplant failure.
5. Selects a suitable aerodrome or landing area, which is within the performance capability of the aeroplane.
6. Establishes a proper flight pattern to the selected aerodrome or landing area, taking into account altitude, wind, terrain, obstructions, and other pertinent operational factors.
7. Follows the emergency checklist items appropriate to the aeroplane.
8. Determines the cause for the simulated powerplant failure (if altitude permits) and if a restart is a viable option.
9. Uses configuration devices, such as landing gear and flaps in a manner recommended by the manufacturer and/or approved by the TTCAA.

E. TASK: SPECIFIC FLIGHT CHARACTERISTICS

REFERENCES: Part 2; FSB Report; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of specific flight characteristics appropriate to the specific aeroplane, as identified by the FSB Report, such as Dutch Rolls in a Boeing 727 or Lear Jet.
2. Uses proper technique to enter into, operate within, and recover from specific flight situations.

F. TASK: RECOVERY FROM UNUSUAL ATTITUDES

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of recovery from unusual attitudes.
2. Recovers from nose-high unusual attitudes, using proper pitch, bank, and power techniques.
3. Recovers from nose-low unusual attitudes, using proper pitch, bank, and power techniques.

V. AREA OF OPERATION: INSTRUMENT PROCEDURES

NOTE: tasks B through F are not required if the applicant holds a private pilot or commercial pilot licence and is seeking a type rating limited to VFR.

A. TASK: STANDARD TERMINAL ARRIVAL/FLIGHT MANAGEMENT SYSTEM PROCEDURES

REFERENCES: Part 2; POH, AFM; En Route Low and High Altitude Charts, Profile Descent Charts, STAR's/FMSP's, IAP.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits adequate knowledge of En Route Low and High Altitude Charts, STAR's/FMSP's, Instrument Approach Procedure Charts, and related pilot and controller responsibilities.
2. Uses the current and appropriate navigation publications for the proposed flight.
3. Selects and correctly identifies all instrument references, flight director and autopilot controls, and navigation and communications equipment associated with the arrival.
4. Performs the aeroplane checklist items appropriate to the arrival.
5. Establishes communications with ATC, using proper phraseology.
6. Complies, in a timely manner, with all ATC clearances, instructions, and restrictions.
7. Exhibits adequate knowledge of two-way communications failure procedures.
8. Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, ATC clearance, or as directed by the flight test examiner.
9. Adheres to airspeed restrictions and adjustments required by regulations, ATC, the POH, the AFM, or the flight test examiner.
10. Establishes, where appropriate, a rate of descent consistent with the aeroplane operating characteristics and safety.
11. Maintains the appropriate airspeed/V-speed within ±10 knots, but not less than V_{REF}, if applicable; heading ±10°;altitude within ±100 feet (30 meters); and accurately tracks radials, courses, and bearings.
12. Complies with the provisions of the Profile Descent, STAR, and other arrival procedures, as appropriate.

B. TASK: HOLDING

REFERENCES: Part 2; POH, AFM; En Route Low and High Altitude Charts, STARs, FMSP, IAP.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits adequate knowledge of holding procedures for standard and non-standard, published and non-published holding patterns. If appropriate, demonstrates adequate knowledge of holding endurance, including, but not necessarily limited to, fuel on board, fuel flow while holding, fuel required to alternate, etc.
2. Changes to the recommended holding airspeed appropriate for the aeroplane and holding altitude, so as to cross the holding fix at or below maximum holding airspeed.
3. Recognizes arrival at the clearance limit or holding fix.
4. Follows appropriate entry procedures for a standard, non standard, published, or non-published holding pattern.
5. Complies with ATC reporting requirements.
6. Uses the proper timing criteria required by the holding altitude and ATC or flight test examiner's instructions.
7. Complies with the holding pattern leg length when a DME distance is specified.
8. Uses the proper wind-drift correction techniques to accurately maintain the desired radial, track, courses, or bearing.
9. Arrives over the holding fix as close as possible to the "expect further clearance" time.
10. Maintains the appropriate airspeed/V-speed within ±10 knots, altitude within ±100 feet (30 meters), headings within ±10°; and accurately tracks radials, courses, and bearings.

C. TASK: PRECISION INSTRUMENT APPROACHES

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM, IAP.

NOTE: Two precision approaches, utilizing aeroplane NAVAID equipment for centerline and glideslope guidance, must be accomplished in simulated or actual instrument conditions to DA/DH. At least one approach must be flown manually. The second approach may be flown via the autopilot, if appropriate, and if the DA/DH altitude does not violate the authorized minimum altitude for autopilot operation. Manually flown precision approaches may use raw data displays or may be flight director assisted, at the discretion of the flight test examiner.

For multiengine aeroplanes at least one manually controlled precision approach must be accomplished with a simulated failure of one powerplant. The simulated powerplant failure should occur before initiating the final approach segment and must continue to touchdown or throughout the missed approach procedure. As the markings on localizer/glide slope indicators vary, a one-quarter scale deflection of either the localizer, or glide slope indicator is when it is displaced one-fourth of the distance that it may be deflected from the on glide slope or on localizer position.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the precision instrument approach procedures with all engines operating, and with one engine inoperative.
2. Accomplishes the appropriate precision instrument approaches as selected by the flight test examiner.
3. Establishes two-way communications with ATC using the proper communications phraseology and techniques, either personally, or, if appropriate, directs co-pilot/safety pilot to do so, as required for the phase of flight or approach segment.
4. Complies, in a timely manner, with all clearances, instructions, and procedures.
5. Advises ATC anytime the applicant is unable to comply with a clearance.
6. Establishes the appropriate aeroplane configuration and airspeed/V-speed considering turbulence, wind shear, microburst conditions, or other meteorological and operating conditions.
7. Completes the aeroplane checklist items appropriate to the phase of flight or approach segment, including engine out approach and landing checklists, if appropriate.
8. Prior to beginning the final approach segment, maintains the desired altitude ±100 feet (30 meters), the desired airspeed within ±10 knots, the desired heading within ±5°; and accurately tracks radials, courses, and bearings.
9. Selects, tunes, identifies, and monitors the operational status of ground and aeroplane navigation equipment used for the approach.
10. Applies the necessary adjustments to the published DA/DH and visibility criteria for the aeroplane approach category as required, such as—

    (a) Notices to Airmen, including Flight Data Center Procedural NOTAMs.
    (b) Inoperative aeroplane and ground navigation equipment.
    (c) Inoperative visual aids associated with the landing environment.
    (d) National Weather Service (NWS) reporting factors and criteria.

11. Establishes a predetermined rate of descent at the point where the electronic glide slope begins, which approximates that required for the aeroplane to follow the glide slope.
12. Maintains a stabilized final approach, from the Final Approach Fix to Decision Height allowing no more than one-quarter scale deflection of either the glide slope or localizer indications and maintains the desired airspeed within ±5 knots.
13. A missed approach or transition to a landing shall be initiated at Decision Height.
14. Initiates immediately the missed approach when at the DA/DH, and the required visual references for the runway are not unmistakably visible and identifiable.
15. Transitions to a normal landing approach (missed approach for seaplanes) only when the aeroplane is in a position from which a descent to a landing on the runway can be made at a normal rate of descent using normal manoeuvring.
16. Maintains localizer and glide slope within one-quarter scale deflection of the indicators during the visual descent from DA/DH to a point over the runway where glide slope must be abandoned to accomplish a normal landing.

D. TASK: NONPRECISION INSTRUMENT APPROACHES

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM, IAP.

NOTE: The applicant must accomplish at least two nonprecision approaches (one of which must include a procedure turn) in simulated or actual weather conditions, using two different approach systems. At least one nonprecision approach must be flown manually without receiving radar vectors. The flight test examiner will select nonprecision approaches that are representative of that which the applicant is likely to use. The choices must utilize two different systems; i.e., NDB and one of the following: VOR, LOC, LDA, GPS, or LORAN.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of nonprecision approach procedures representative of those the applicant is likely to use.
2. Accomplishes the nonprecision instrument approaches selected by the flight test examiner.
3. Establishes two-way communications with ATC as appropriate to the phase of flight or approach segment and uses proper communications phraseology and techniques.
4. Complies with all clearances issued by ATC.
5. Advises ATC or the flight test examiner any time the applicant is
6. unable to comply with a clearance.
7. Establishes the appropriate aeroplane configuration and airspeed, and completes all applicable checklist items.
8. Maintains, prior to beginning the final approach segment, the desired altitude ±100 feet (30 meters), the desired airspeed ±10 knots, the desired heading ±5°; and accurately tracks radials, courses, and bearings.
9. Selects, tunes, identifies, and monitors the operational status of ground and aeroplane navigation equipment used for the approach.
10. Applies the necessary adjustments to the published Minimum Descent Altitude (MDA) and visibility criteria for the aeroplane approach category when required, such as—

    (a) Notices to Airmen, including Flight Data Center Procedural NOTAMs.
    (b) Inoperative aeroplane and ground navigation equipment.
    (c) Inoperative visual aids associated with the landing environment.
    (d) National Weather Service (NWS) reporting factors and criteria.
11. Establishes a rate of descent that will ensure arrival at the MDA (at, or prior to reaching, the visual descent point (VDP), if published) with the aeroplane in a position from which a descent from MDA to a landing on the intended runway can be made at a normal rate using normal manoeuvring.
12. Allows, while on the final approach segment, not more than quarter-scale deflection of the Course Deviation Indicator (CDI) or ±5° in the case of the RMI or bearing pointer, and maintains airspeed within ±5 knots of that desired.
13. Maintains the MDA, when reached, within -0, +50 feet (0, +15 meters) to the missed approach point.
14. Executes the missed approach if the required visual references for the intended runway are not unmistakably visible and identifiable at the missed approach point.
15. Executes a normal landing from a straight-in or circling approach when instructed by the flight test examiner.

NOTE: If task D, Nonprecision Instrument Approaches, the second approach may be waived, if the applicant demonstrates a high degree of proficiency on the first approach and the applicant's training records or instructor certification show that the applicant has satisfactorily completed the nonprecision approach training requirements. The instrument approaches are considered to begin when the aeroplane is over the initial approach fix for the procedure being used and end when the aeroplane touches down on the runway or when transition to a missed approach configuration is completed. Instrument conditions need NOT be simulated below the minimum altitude for the approach being accomplished.

E. TASK: CIRCLING APPROACH

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM, IAP.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of circling approach categories, speeds, and procedures to a specified runway.
2. In simulated or actual instrument conditions to MDA, accomplishes the circling approach selected by the flight test examiner.
3. Demonstrates sound judgment and knowledge of the aeroplane manoeuvring capabilities throughout the circling approach.
4. Confirms the direction of traffic and adheres to all restrictions and instructions issued by ATC.
5. Descends at a rate that ensures arrival at the MDA at, or prior to, a point from which a normal circle-to-land manoeuvre can be accomplished.
6. Avoids descent below the appropriate circling MDA or exceeding the visibility criteria until in a position from which a descent to a normal landing can be made.
7. Manoeuvres the aeroplane, after reaching the authorized circling approach altitude, by visual references to maintain a flightpath that permits a normal landing on a runway at least 90° from the final approach course.
8. Performs the procedure without excessive manoeuvring and without exceeding the normal operating limits of the aeroplane (the angle of bank should not exceed 30°).
9. Maintains the desired altitude within -0, +100 feet (-0, +30 meters), heading/track within ±5°, the airspeed/Vspeed within ±5 knots, but not less than the airspeed as specified in the POH or the AFM.
10. Uses the appropriate aeroplane configuration for normal and abnormal situations and procedures.
11. Turns in the appropriate direction, when a missed approach is dictated during the circling approach, and uses the correct procedure and aeroplane configuration.
12. Performs all procedures required for the circling approach and aeroplane control in a smooth, positive, and timely manner.

F. TASK: MISSED APPROACH

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM, IAP.

NOTE: The applicant must perform two missed approaches with one being from a precision approach (ILS, MLS, or GPS). One complete published missed approach must be accomplished. Additionally, in multiengine aeroplanes, a missed approach must be accomplished with one engine inoperative (or simulated inoperative). The engine failure may be experienced anytime prior to the initiation of the approach, during the approach, or during the transition to the missed approach attitude and configuration.

Going below the MDA or DA/DH, as appropriate, prior to the initiation of the missed approach shall be considered unsatisfactory performance. However, satisfactory performance may be concluded if the missed approach is properly initiated at DA/DH and the aeroplane descends below DA/DH only because of the momentum of the aeroplane transitioning from a stabilized approach to a missed approach.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of missed approach procedures associated with standard instrument approaches.
2. Initiates the missed approach procedure promptly by the timely application of power, establishes the proper climb attitude, and reduces drag in accordance with the approved procedures.
3. Reports to ATC, beginning the missed approach procedure.
4. Complies with the appropriate missed approach procedure or ATC clearance.
5. Advises ATC any time the applicant is unable to manoeuvre the aeroplane to comply with a clearance.
6. Follows the recommended aeroplane checklist items appropriate to the go-around procedure for the aeroplane used.
7. Requests clearance, if appropriate, to the alternate aerodrome, another approach, a holding fix, or as directed by the flight test examiner.
8. Maintains the desired altitudes ±100 feet (30 meters), airspeed ±5 knots, heading ±5°; and accurately tracks courses, radials, and bearings.

VI. AREA OF OPERATION: LANDINGS AND APPROACHES TO LANDINGS

NOTE: Notwithstanding the authorizations for the combining of manoeuvres and for the waiver of manoeuvres, the applicant must make at least three actual landings (one to a full stop). These landings must include the types listed in this area of operation; however, more than one type may be combined where appropriate (i.e., crosswind and landing from a precision approach or landing with simulated powerplant failure, etc.). For all landings, touchdown should be 500 to 3,000 feet (150 to 900 meters) past the runway threshold, not to exceed one-third of the runway length, with the runway centerline between the main gear. An amphibian type rating shall bear the limitation "LIMITED TO LAND" or "LIMITED TO SEA," as appropriate, unless the applicant demonstrates proficiency in both land and sea operations.

A. TASK: NORMAL AND CROSSWIND APPROACHES AND LANDINGS

REFERENCES: Part 2; FAA-H-8083-3; POH, AFM.

NOTE: In an aeroplane with a single powerplant, unless the applicant holds a commercial pilot licence, he or she must accomplish three accuracy approaches and spot landings from an altitude of 1,000 feet (300 meters) or less, with the engine power lever in idle and 180° of change in direction. The aeroplane must touch the ground in a normal landing attitude beyond and within 200 feet (60 meters) of a designated line or point on the runway. At least one landing must be from a forward slip. Although circling approaches are acceptable, 180° approaches using two 90° turns with a straight base leg are preferred.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of normal and crosswind approaches and landings including recommended approach angles, airspeeds, V-speeds, configurations, performance limitations, wake turbulence, LAHSO, and safety factors (as appropriate to the aeroplane).
2. Establishes the approach and landing configuration appropriate for the runway and meteorological conditions, and adjusts the powerplant controls as required.
3. Maintains a ground track that ensures the desired traffic pattern will be flown, taking into account any obstructions and ATC or flight test examiner instructions.
4. Verifies existing wind conditions, makes proper correction for drift, and maintains a precise ground track.
5. Maintains a stabilized approach and the desired airspeed/V-speed within ±5 knots.
6. Accomplishes a smooth, positively controlled transition from final approach to touchdown.
7. Maintains positive directional control and crosswind correction during the after-landing roll.
8. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the aeroplane to a safe stop.
9. Completes the applicable after-landing checklist items in a timely manner and as recommended by the manufacturer.

B. TASK: LANDING FROM A PRECISION APPROACH

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM.

NOTE: If circumstances beyond the control of the applicant prevent an actual landing, the flight test examiner may accept an approach to a point where, in his or her judgment, a safe landing and a full stop could have been made, and credit given for a missed approach. Where a simulator, approved for landing from a precision approach, is used, the approach may be continued through the landing and credit given for one of the landings required by this area of operation.

Objective. To determine that the applicant:

1. Exhibits awareness of landing in sequence from a precision approach.
2. Considers factors to be applied to the approach and landing such as displaced thresholds, meteorological conditions, NOTAMs, and ATC or flight test examiner instructions.
3. Uses the aeroplane configuration and airspeed/V-speeds, as appropriate.
4. Maintains, during the final approach segment, glide slope and localizer indications within applicable standards of deviation, and the recommended airspeed/V-speed ±5 knots.
5. Applies gust/wind factors as recommended by the manufacturer, and takes into account meteorological phenomena such as wind shear, microburst, and other related safety of flight factors.
6. Accomplishes the appropriate checklist items.
7. Transitions smoothly from simulated instrument meteorological conditions at a point designated by the flight test examiner, maintaining positive aeroplane control.
8. Accomplishes a smooth, positively controlled transition from final approach to touchdown.
9. Maintains positive directional control and crosswind correction during the after-landing roll.

10. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the aeroplane to a safe stop after landing.
11. Completes the applicable after-landing checklist items in a timely manner and as recommended by the manufacturer.

C. TASK: APPROACH AND LANDING WITH (SIMULATED) POWERPLANT FAILURE—MULTIENGINE AEROPLANE

REFERENCES: Part 2; FAA-H-8083-3; POH, AFM.

NOTE: In aeroplanes with three powerplants, the applicant shall follow a procedure (if approved) that approximates the loss of two powerplants, the center and one outboard powerplant. In other multiengine aeroplanes, the applicant shall follow a procedure, which simulates the loss of 50 percent of available powerplants, the loss being simulated on one side of the aeroplane.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the flight characteristics and controllability associated with manoeuvring to a landing with (a) powerplant(s) inoperative (or simulated inoperative) including the controllability factors associated with manoeuvring, and the applicable emergency procedures.
2. Maintains positive aeroplane control. Establishes a bank of approximately 5°, if required, or as recommended by the manufacturer, to maintain coordinated flight, and properly trims for that condition.
3. Sets powerplant controls, reduces drag as necessary, correctly identifies and verifies the inoperative powerplant(s) after the failure (or simulated failure).
4. Maintains the operating powerplant(s) within acceptable operating limits.
5. Follows the prescribed aeroplane checklist, and verifies the procedures for securing the inoperative powerplant(s).
6. Proceeds toward the nearest suitable aerodrome.
7. Maintains, prior to beginning the final approach segment, the desired altitude ±100 feet (30 meters), the desired airspeed ±10 knots, the desired heading ±5°; and accurately tracks courses, radials, and bearings.
8. Establishes the approach and landing configuration appropriate for the runway or landing area, and meteorological conditions; and adjusts the powerplant controls as required.
9. Maintains a stabilized approach and the desired airspeed/V-speed within ±5 knots.
10. Accomplishes a smooth, positively-controlled transition from final approach to touchdown.
11. Maintains positive directional control and crosswind corrections during the after-landing roll.
12. Uses spoilers, prop reverse, thrust reversers, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the aeroplane to a safe stop after landing.
13. Completes the applicable after-landing checklist items in a timely manner, after clearing the runway, and as recommended by the manufacturer.

D. TASK: LANDING FROM A CIRCLING APPROACH

REFERENCES: Part 2; FAA-H-8083-15; POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of a landing from a circling approach.
2. Selects, and complies with, a circling approach procedure to a specified runway.
3. Considers the environmental, operational, and meteorological factors which affect a landing from a circling approach.
4. Confirms the direction of traffic and adheres to all restrictions and instructions issued by ATC.
5. Descends at a rate that ensures arrival at the MDA at, or prior to, a point from which a normal circle-to-land manoeuvre can be accomplished.
6. Avoids descent below the appropriate circling MDA or exceeding the visibility criteria until in a position from which a descent to a normal landing can be made.
7. Accomplishes the appropriate checklist items.
8. Manoeuvres the aeroplane, after reaching the authorized circling approach altitude, by visual references, to maintain a flightpath that permits a normal landing on a runway at least 90° from the final approach course.
9. Performs the manoeuvre without excessive manoeuvring and without exceeding the normal operating limits of the aeroplane. The angle of bank should not exceed 30°.
10. Maintains the desired altitude within +100, -0 feet (+30, 0 meters), heading within ±5°, and approach airspeed/V speed within ±5 knots.
11. Uses the appropriate aeroplane configuration for normal and abnormal situations and procedures.

12. Performs all procedures required for the circling approach and aeroplane control in a timely, smooth, and positive manner.
13. Accomplishes a smooth, positively controlled transition to final approach and touchdown or to a point where in the opinion of the flight test examiner that a safe full stop landing could be made.
14. Maintains positive directional control and crosswind correction during the after-landing roll.
15. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the aeroplane to a safe stop.
16. Completes the appropriate after-landing checklist items, after clearing the runway, in a timely manner and as recommended by the manufacturer.

E. TASK: REJECTED LANDING

REFERENCES: Part 2; FAA-H-8083-3; POH, AFM; FSB Report.

NOTE: The manoeuvre may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 feet (30 meters) above the runway. This manoeuvre should be initiated approximately 50 feet (15 meters) above the runway and approximately over the runway threshold or as recommended by the FSB Report.

For those applicants seeking a VFR only type rating in an aeroplane not capable of instrument flight, and where this manoeuvre is accomplished with a simulated engine failure, it should not be initiated at speeds or altitudes below that recommended in the POH.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of a rejected landing procedure including the conditions that dictate a rejected landing, the importance of a timely decision, LAHSO considerations, the recommended airspeed/V-speeds, and also the applicable “clean-up” procedure.
2. Makes a timely decision to reject the landing for actual or simulated circumstances and makes appropriate notification when safety-of-flight is not an issue.
3. Applies the appropriate power setting for the flight condition and establishes a pitch attitude necessary to obtain the desired performance.
4. Retracts the wing flaps/drag devices and landing gear, if appropriate, in the correct sequence and at a safe altitude, establishes a positive rate of climb and the appropriate airspeed/V-speed within ±5 knots.
5. Trims the aeroplane as necessary, and maintains the proper ground track during the rejected landing procedure.
6. Accomplishes the appropriate checklist items in a timely manner in accordance with approved procedures.

F. TASK: LANDING FROM A NO FLAP OR A NONSTANDARD FLAP APPROACH

REFERENCES: Part 2; TTCAA-H-8083-3; FSB Report; POH, AFM.

NOTE: This manoeuvre need not be accomplished for a particular aeroplane type if the Director has determined that the probability of flap extension failure on that type aeroplane is extremely remote due to system design. The flight test examiner must determine whether checking on slats only and partial-flap approaches are necessary for the skill test.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the factors, which affect the flight characteristics of an aeroplane when full or partial flaps, leading edge flaps, and other similar devices become inoperative.
2. Uses the correct airspeeds/V-speeds for the approach and landing.
3. Maintains the proper aeroplane pitch attitude and flightpath for the configuration, gross weight, surface winds, and other applicable operational considerations.
4. Uses runway of sufficient length for the zero or nonstandard flap condition.
5. Manoeuvres the aeroplane to a point where a touchdown at an acceptable point on the runway and a safe landing to a full stop could be made.
6. After landing, uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the aeroplane to a safe stop.

VII. AREA OF OPERATION: NORMAL AND ABNORMAL PROCEDURES

REFERENCES: Part 2; POH, AFM.

Objective. To determine that the applicant:

1. Possesses adequate knowledge of the normal and abnormal procedures of the systems, subsystems, and devices relative to the aeroplane type (as may be determined by the flight test examiner); knows immediate action items to accomplish, if appropriate, and proper checklist to accomplish or to call for, if appropriate.
2. Demonstrates the proper use of the aeroplane systems, subsystems, and devices (as may be determined by the flight test examiner) appropriate to the aeroplane, such as—

   (a) Powerplant.
   (b) Fuel system.
   (c) Electrical system.
   (d) Hydraulic system.
   (e) Environmental and pressurization systems.
   (f) Fire detection and extinguishing systems.
   (g) Navigation and avionics systems.
   (h) Automatic flight control system, electronic flight instrument system, and related subsystems.
   (i) Flight control systems.
   (j) Anti-ice and deice systems.
   (k) Aeroplane and personal emergency equipment, other systems, subsystems, and devices specific to the type aeroplane, including make, model, and series.

VIII. AREA OF OPERATION: EMERGENCY PROCEDURES

REFERENCES: Part 2; POH, AFM.

Objective. To determine that the applicant:

1. Possesses adequate knowledge of the emergency procedures (as may be determined by the flight test examiner) relating to the particular aeroplane type.
2. Demonstrates the proper emergency procedures (to be determined by the flight test examiner) relating to the particular aeroplane type, including— emergency descent (maximum rate), inflight fire and smoke removal, rapid decompression, emergency evacuation, and others (as may be required by the AFM).
3. Demonstrates the proper procedure for any other emergency outlined (as must be determined by the flight test examiner) in the appropriate approved AFM.

IX. AREA OF OPERATION: POSTFLIGHT PROCEDURES

A. TASK: AFTER-LANDING PROCEDURES

REFERENCES: POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of safe after landing/taxi/ramping/anchoring/docking and mooring procedures as appropriate.
2. Demonstrates proficiency by maintaining correct and positive control. In aeroplanes equipped with float devices, this includes water taxiing, approaching a buoy, sailing, and docking.
3. Maintains proper spacing on other aircraft, obstructions, and persons.
4. Accomplishes the applicable checklist items and performs the recommended procedures.
5. Maintains the desired track and speed.
6. Complies with instructions issued by ATC (or the flight test examiner simulating ATC).
7. Observes runway hold lines, localizer and glide slope critical areas, and other surface control markings and lighting to prevent a runway incursion.
8. Maintains constant vigilance and aeroplane control during the taxi operation.

B. TASK: PARKING AND SECURING

REFERENCES: POH, AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the parking, mooring, docking, beaching, and the securing aeroplane procedures.
2. Demonstrates adequate knowledge of the aeroplane forms/logs to record the flight time/discrepancies.

APPENDIX 1

TASK VS. FLIGHT SIMULATION DEVICE CREDIT

Flight test examiners conducting the Airline Transport Pilot and Aircraft Type Rating Skill Test Standards—Aeroplane with flight simulation devices should consult appropriate documentation to ensure that the device has been approved for training, testing, and checking the tasks in question. The documentation for each device should reflect that the following activities have occurred.

1. The device must be evaluated, determined to meet the appropriate standards, and assigned the appropriate qualification level by the Director, TTCAA. The device must continue to meet qualification standards through continuing evaluations as outlined in the appropriate advisory material. For aeroplane flight simulation training devices (FSTD's), ICAO Document 9625 Manual of Criteria for the Qualification of Flight Simulators will be used.
2. The TTCAA must approve the device for training, testing, and checking the specific tasks listed in this appendix.
3. The device must continue to support the level of student or applicant performance required by this STS.

NOTE: Users of the following chart are cautioned that use of the chart alone is incomplete. The description and Objective of each task as listed in the body of the STS, including all NOTES, must also be incorporated for accurate simulation device use.

USE OF CHART

X Creditable.
A Creditable if appropriate systems are installed and operating.

NOTE:

1. The aeroplane may be used for all tasks.
2. For the Airline Transport Pilot Licence, not more than 50 percent of the manoeuvres may be accomplished in an FSTD unless:

   (a) Each manoeuvre has been satisfactorily accomplished for an instructor in the appropriate aeroplane not less than three times, or
   (b) The applicant has logged not less than 1,500 hours of flight time as a pilot.

3. Level C simulators may be used as indicated only if the applicant meets established prerequisite experience requirements.
4. Training Devices below Level 4 may NOT be used for aeroplane type ratings.
5. Standards for and use of Level 1 Flight Training Devices have not been determined.

FLIGHT TASK FLIGHT SIMULATION DEVICE LEVEL

	Areas of Operation: Section Two	1	2	3	4	5	6	7	A	B	C	D
II.	Preflight Procedures											
A.	Preflight Inspection (Cockpit Only)	A	X	A	A	X	X	X	X	X	X	
B.	Powerplant Start	A	X	A	A	X	X	X	X	X	X	
C.	Taxiing	X	X									
D.	Pretakeoff Checks	A	X	A	A	X	X	X	X	X	X	
III.	Takeoff and Departure Phase											
A.	Normal and Crosswind Takeoff	X	X									
B.	Instrument Takeoff (Levels 3, 6, & 7 require a visual sys. approved in accordance with AP 120-40, as amended)	X	X	X	X	X	X	X				
C.	Powerplant Failure During Takeoff	X	X	X	X							
D.	Rejected Takeoff (Levels 3, 6, & 7 require a visual sys. approved in accordance with AP 120-40, as amended)	X	X	X	X	X	X	X				
E.	Departure Procedure	X	X	X	X	X	X	X				
IV.	Inflight Manoeuvres											
A.	Steep Turns	X	X	X	X	X	X	X				
B.	Approaches to Stalls (Use of Levels 3, 6, & 7 require operational synthetic stall warning sys.)	X	X	X	X	X	X	X				
C.	Powerplant Failure—Multiengine Aeroplane	X	X	X	X							
D.	Powerplant Failure—Single-Engine Aeroplane	X	X	X	X	X	X	X				
E.	Specific Flight Characteristics Level of device as determined by the aeroplane FSB. Recovery From Unusual Attitudes	X	X	X	X							

V.	Instrument Procedures											
A.	Standard Terminal Arrival/Flight Management System Procedures for Arrivals	X	X	X	X	X	X	X				
B.	Holding	X	X	X	X	X	X	X				
C1.	Precision Instrument Approach (All Engine Operating; Autopilot/Manual Flt. Dir. Assist/Manual Raw Data; Levels 2 & 5 use limited to A/P coupled approach only)	A	X	A	X	X	X	X	X	X		
C2.	Precision Instrument Approach (One Engine Inoperable; Manual Flt. Dir. Asst/Manual Raw Data)	X	X	X	X							
D.	Nonprecision Instrument Approach (Not more than one authorized in a device less than Level A simulator; Levels 2 & 5 use limited to A/P coupled approach only)	A	X	A	X	X	X	X	X	X		
E.	Circling Approach (each approach must be specifically auth.)	X	X	X	X							
F1.	Missed Approach (Normal)	X	X	X	X	X	X	X				
F2.	Missed Approach (Powerplant Failure)	X	X	X	X							
VI.	Landings and Approaches to Landings											
A.	Normal and Crosswind Approaches and Landings	X	X									
B.	Landing From a Precision Approach	X	X									
C.	Approach and Landing with (Simulated) Powerplant Failure—Multiengine Aeroplane	X	X									
D.	Landing From Circling Approach	X	X									
E.	Rejected Landing	X	X	X	X							
F.	Landing From a No Flap or a Nonstandard Flap Approach	X	X									

FLIGHT TASK FLIGHT SIMULATION DEVICE LEVEL

Areas of Operation: Section Two		1	2	3	4	5	6	7	A	B	C	D
VII.	Normal and Abnormal Procedures (*1) (*2)											
A.	Powerplant (including shutdown & restart	A	X	A	A	X	X	X	X	X	X	
B.	Fuel System	A	X	A	A	X	X	X	X	X	X	
C.	Electrical System	A	X	A	A	X	X	X	X	X	X	
D.	Hydraulic System	A	X	A	A	X	X	X	X	X	X	
E.	Environmental and Pressurization Systems	A	X	A	A	X	X	X	X	X	X	
F.	Fire Detection and Extinguisher Systems	A	X	A	A	X	X	X	X	X	X	
G.	Navigation and Avionics Systems	A	X	A	A	X	X	X	X	X	X	
H.	Automatic Flight control Systems, Electronic Flight Instrument Systems & Related Subsystems	X	X									
I.	Flight Control Systems	X	X	X	X							
J.	Anti-ice and Deice Systems	A	X	A	A	X	X	X	X	X	X	
K.	Aircraft and Personal Emergency Equipment	A	X	A	A	X	X	X	X	X	X	
L.	Others, as determined by make, model, or series	A	A	X	X	X	X	X	X			
VIII.	Emergency Procedures											
A.	Emergency Descent (Max. Rate)	X	X	X	X	X	X	X				
B.	Inflight Fire and Smoke Removal	A	X	A	A	X	X	X	X	X	X	
C.	Rapid Decompression	A	X	A	A	X	X	X	X	X	X	
D.	Emergency Evacuation	X	X	X	X	X	X	X				
E.	Others (as may be required by AFM)	A	X	A	A	X	X	X	X	X	X	
IX.	Postflight Procedures											
A.	After-Landing Procedures	A	X	A	A	X	X	X	X	X	X	
B.	Parking and Securing	A	X	A	A	X	X	X	X	X	X	

(*1) Evaluation of normal and abnormal procedures may be accomplished in conjunction with other events.
(*2) Situations resulting in asymmetrical thrust or drag conditions (i.e., asymmetrical flight controls) must be accomplished in at least a Level A device.

However, shutdown and restart (procedures only) may be accomplished in a properly equipped FTD.